

Attorney Docket No. P10991-US2

REMARKS/ARGUMENTS**1.) Claim Amendments**

Claims 1, 2, 5-8, 12-15, 17, 25-29, and 32-37 are pending in the application. The Applicants have amended independent claims 1 and 17. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

2.) Claim Rejections – 35 U.S.C. § 103(a)

The Examiner rejected claims 1-2, 5-8, 12-15, 17, 25-29 and 32-37 under 35 U.S.C. § 103(a) as being unpatentable over Jarvinen, et al. (EP 0843301-A2) in view of Jansson (US 5,579,435) and Rao (US 6,101,466). The Applicants have amended the claims to better distinguish the claimed invention from Jarvinen, Jansson, and Rao. The Examiner's consideration of the amended claims is respectfully requested.

Amended claim 1 recites a method of generating comfort noise in a speech decoder that receives speech and noise information from a communication channel. The method includes the steps of interpolating by the speech decoder, a plurality of comfort noise parameter values normally used by the speech decoder to generate comfort noise; providing background noise parameter values from a receiver buffer; and calculating, at the speech decoder, a mean value of the background noise parameter over a period of time. The speech decoder also calculates variability information indicative of how the background noise parameter varies relative to the mean value of the background noise parameter. In response to the variability information, the interpolated comfort noise parameter values are perturbed to produce perturbed comfort noise parameter values. The decoder then selects at least some of the perturbed comfort noise parameter values for use in generating perturbed comfort noise.

Jarvinen differs from the claimed invention in several ways. An important difference is that Jarvinen's *encoder* produces extra comfort noise parameters, Random Excitation Spectral Control (RESC) parameters, on the transmit side. (Page 4, lines 40-41). Jarvinen then uses valuable bandwidth to transmit the RESC parameters to the decoder in the receiver. The claimed invention, on the other hand, does not have to

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generate and transmit extra comfort noise parameters. Instead, the claimed invention computes the perturbing parameters (spectral shape/gain) *in the decoder* during the hangover period when a transition from speech to comfort noise occurs. These parameters are then used throughout the comfort noise period to generate perturbed comfort noise. Since Jarvinen calculates RESC parameters in the encoder, Jarvinen does not teach or suggest the steps of claim 1, which are recited as being performed in the decoder.

The second reference, Jansson, discloses an antiscircling algorithm and improvements to it, but has nothing to do with the generation of comfort noise during discontinuous transmission (DTX). Jansson proposes a method of reducing the rapid variations in the signal spectrum during noisy times when no DTX is used. The claimed invention, on the other hand, provides a method and apparatus for generating in the decoder, rapid variations in comfort noise to avoid a comfort noise that is too static sounding. Jansson, alone or in combination with Jarvinen, does not teach or suggest the claimed invention.

The third reference, Rao, discloses the use of a weighted average of auto-correlation values of the input signal generated during the noise-analysis phase. The weighting function gives less weight to the auto-correlations during the first few frames since they may include speech, and more weight to frames toward the end of this phase. (Col. 3, lines 43-51). This process is not relevant to the claimed invention. In a second process in Rao, a comfort noise generator gradually changes the nature of the signal from speech to pseudo-random noise in order to overcome the bursty nature of the comfort noise during the transition period from speech to comfort noise. This is very different from the claimed invention, which is used during the entire comfort noise period, and perturbs the spectral and/or energy parameter in order to generate comfort noise that is not too static. Rao, alone or in combination with Jarvinen and Jansson, does not teach or suggest the claimed invention.

For all the above reasons, the withdrawal of the rejection and the allowance of amended claim 1 are respectfully requested.

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Claims 2, 5-8, 12-15, 32, and 33 depend from amended claim 1 and recite further limitations in combination with the novel and unobvious elements of claim 1. Therefore, the allowance of claims 2, 5-8, 12-15, 32, and 33 is respectfully requested.

Independent claim 17 is an apparatus claim corresponding to method claim 1. Claim 17 has been amended in a similar manner to emphasize that the apparatus is in the decoder. Like claim 1 above, the invention recited in amended claim 17 is not taught or suggested by Jarvinen, Jansson, or Rao. Therefore, the withdrawal of the rejection and the allowance of amended claim 17 are respectfully requested.

Claims 25-29 and 34-37 depend from amended claim 17 and recite further limitations in combination with the novel and unobvious elements of claim 17. Therefore, the allowance of claims 25-29 and 34-37 is respectfully requested.

CONCLUSION

In view of the foregoing remarks, the Applicants believe all of the claims currently pending in the Application to be in a condition for allowance. The Applicants, therefore, respectfully request that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 1, 2, 5-8, 12-15, 17, 25-29, and 32-37.

The Applicants request a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,



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